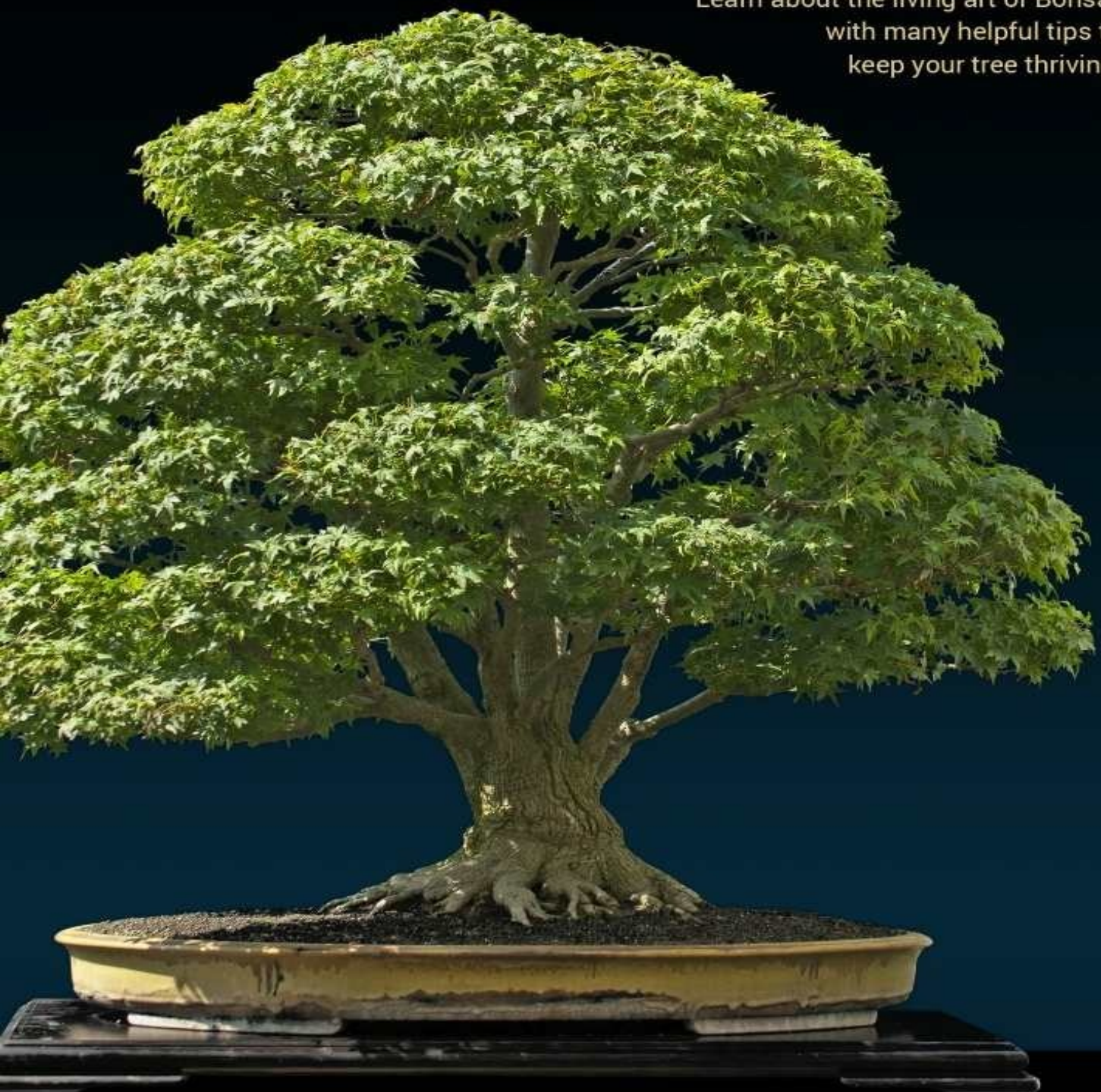


Bonsai

A beginners guide

Learn about the living art of Bonsai,
with many helpful tips to
keep your tree thriving!



Photography by **Walter Pall**
Published by **Bonsai Empire**

Bonsai

A beginner's guide

Photography by *Walter Pall* and *Mauro
Stemberger*

Published by *Bonsai Empire*

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Bonsai: A beginner's guide

Introduction

Bonsai trees are small, potted trees that are well-known parts of the Japanese culture. The living art of Bonsai represents peace and tranquility, as well as long-lasting determination and patience. A “bon” is a flat tray or shallow pot, and “sai” means plant or planting. Originally from China, Bonsai trees date back hundreds of years and are well known for their miniature appearance.

Bonsai trees can come in an array of types and can be grown in a variety of ways. They require daily grooming, but aren't high maintenance. Unlike what most people believe, keeping a Bonsai tree alive and thriving isn't difficult. They do require simple attention and need to be tended to at least once a day.

In this book, you'll learn more about the art of Bonsai and the history behind it, as well as tips for caring for your own Bonsai tree.



Wisteria Floribunda by TJ Klein. Age: 45 years, height 1'8" / 50 cm

Chapter 1

Design principles and inspiration

The ultimate goal of growing a Bonsai is to create a miniaturized but realistic representation of nature in the form of a tree. Bonsai are not genetically dwarfed plants, in fact, any tree species can be used to grow one. The best Bonsai – whether a single tree or a multi-plant or rock landscape composition – touch us, make us take notice, stop us as they catch our experience and imaginations to show us something new.



**Japanese Maple (Acer Palmatum) by Walter Pall.
Age: 70 years, height 2'11" / 90 cm**

Thick trunks, textured bark, an interplay of twisting live wood and deadwood, surface roots, fine branch and twig ramification, foliage pads, relatively small leaves or needles, a complementary and relatively shallow container, tiny fruit or cones or flowers – these are just a few of the more obvious features that can be used to help portray a miniature landscape. They are not all needed or possible in any one given composition, and they cannot simply be included “just because.” A true master artisan knows, feels what is needed. And his or her creation touches us, also. Those true masterpieces are the ones which, when you first look at them, can momentarily take your breath away and raise a smile.



Linden (Tilia Platiphyllus) in nature

Bonsai-in-training (also known as “potensai,” potential Bonsai) should point to a future, more mature creation, in which the artist has somewhat in mind. And because these are made with living, growing things, those future pieces are never complete or finished. They will be presented within certain biological parameters, subject to health issues or remodeling by the tree with the caretakers’ assistance. The oldest and longest-containerized Bonsai because of natural changes can undergo several different styles throughout their long lives. These trees can, in fact, live longer than their full-size counterparts because of our increased attention to their health, water and nutritional needs, protection from

weather extremes, injuries needing care, or pest infestations requiring containment or removal.

Techniques such as pinching buds, pruning and wiring branches, and carefully restricting but not abandoning fertilizers are used to limit and redirect healthy growth. Most commonly kept under four feet (or about a meter) in height, Bonsai are not genetically dwarfed plants. However, plants with smaller leaves do make these compositions easier to design. In fact, any plant species that has a woody stem or trunk, grows true branches, can be successfully grown in a container to restrict its roots/food storage capability, and has smaller or reducible-leaves can be used to create a Bonsai.

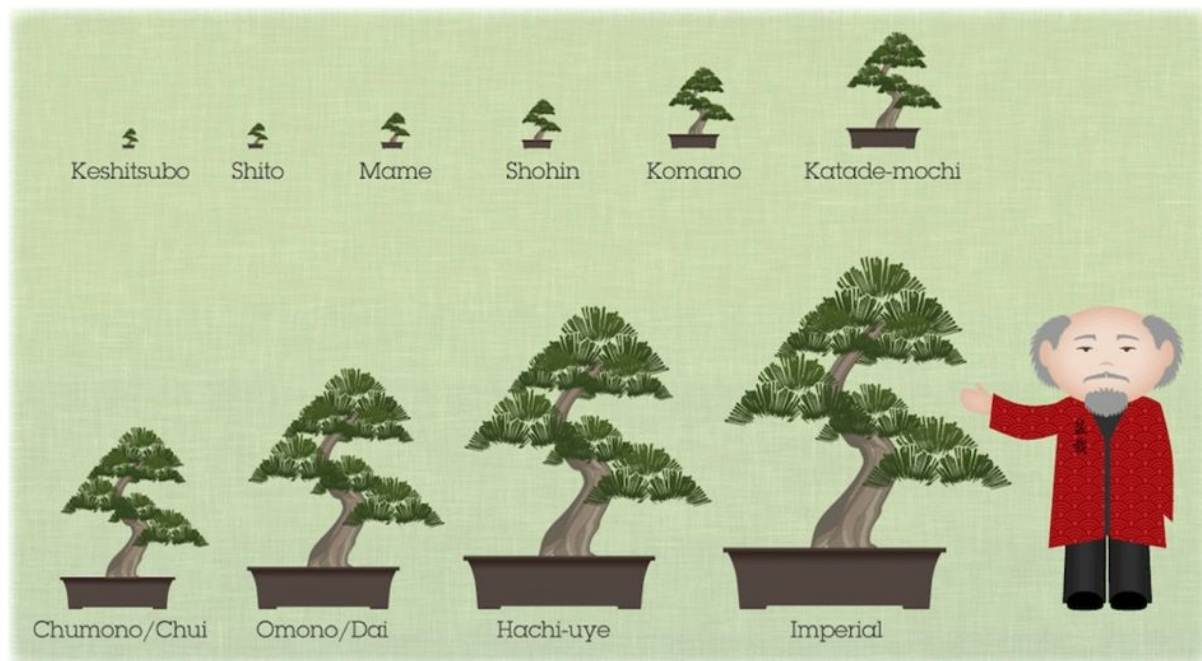
Look around at your trees, bushes, hedges, the copses in your yard or park, plants in the nursery or wild landscape – essentially any of those can be starter material. Carefully collected during the appropriate growing or dormant season with proper permission, your composition is begun. Most native plants can then be grown outdoors; material from more tropical climates needs at least some protection from the elements in the temperate zones.

Bonsai size classifications

The ultimate goal of Bonsai is to create a realistic depiction of nature. As a Bonsai gets smaller (even down to a few inches/centimeters) it increasingly becomes abstract, as opposed to resembling nature in a more precise way. Several classifications of Bonsai have been put forward, and although the exact size classifications are disputed, they help to gain understanding of the aesthetic and botanical aspects of Bonsai. The classifications are originally based on the number of men needed to lift the actual tree.

The size classifications, increasing in size

Keshitsubo	1-3"	(3-8 cm)
Shito	2-4"	(5-10 cm)
Mame	2-6"	(5-15 cm)
Shohin	5-8"	(13-20 cm)
Komono	6-10"	(15-25 cm)
Katade-mochi	10-18"	(25-46 cm)
Chumono / Chiu	16-36"	(41-91 cm)
Omono / Dai	30-48"	(76-122 cm)
Hachi-uye	40-60"	(102-152 cm)
Imperial	60-80"	(152-203 cm)



Bonsai sizes illustrated

Bonsai Sizes Illustrated

Related arts

While “Bonsai” specifically refers to dwarf potted trees based on the Japanese model, it is also used as a generic term for related artforms in other countries, which include but are not limited to the following: Penjing are the older and original form of Chinese miniature landscapes. They usually include rocks to represent mountains, hills, and cliffs. Sometimes they are even all the way up to 10’ (or 3 meter) tall.

Saieki are the newer and smaller Japanese versions of penjing. These are made with rocks, small plants/groundcovers, and underdeveloped trees (which could someday become independently potted Bonsai).

Hòn non bộ are Vietnamese miniature landscapes from 1’ to 25’ (0.3 to 7.6 m) high, made with rocks, plants and water imitating island scenery, mountains and surroundings.

Mai-dât are the Thai compositions which are more angular and symbolic, somewhat likened to stylized dancers’ poses.



*Japanese White Pine (Pinus Pentaphylla) by Walter Pall.
Estimated age: 50 years. Height: 1'10" / 55 cm*

Chapter 2

The history of Bonsai

Although the word 'Bonsai' is Japanese, the art it describes originated in the Chinese empire. By the year 700 AD the Chinese had started the art of 'pun-sai' using special techniques to grow dwarf trees in containers. Much later, the Japanese took over the art and refined it to what we know today as Bonsai.



Oriental Hornbeam (*Carpinus Orientalis*) by Walter Pall.
Age: 40 years, height 1'10" / 55 cm



CHINA - From about the year 706 AD comes the tomb paintings for Crown Prince Zhang Huai, which included depictions of two ladies offering miniature landscapes with small plants in shallow dishes. By this time these were the earliest written descriptions of these pun wan – tray playthings.

As the creation and care of these was already somewhat advanced, the maturation of the art had taken place (but its documentation has not yet been discovered by the west).

The earliest collected and then containerized trees are believed to have been peculiarly-shaped and twisted specimens from the wilds. These were “sacred” as opposed to “profane” because the trees could not be used for any practical, ordinary purposes such as lumber. Their grotesque forms were reminiscent of yoga-type postures which repeatedly bent-back on themselves, re-circulating vital fluids and said to be the cause of long-life.

Over the centuries, different regional styles would be developed throughout the large country with its many varied landscapes; earthenware and ceramic containers would replace the porcelain ones displayed on wooden stands; and attempts would be made to shape the trees with bamboo frameworks or brass wire or lead strips. Many poets and writers each made at least one description of tree and/or mountainous miniature landscapes, and many painters included a dwarfed potted tree as a symbol of a cultivated man's lifestyle. After the 16th century these were called pun tsai or “tray planting.” The term pun ching (“tray landscape,” now called penjing) didn't actually come into usage until the 17th century.



JAPAN - During the Kamakura period, the period in which Japan adopted most of China's cultural trademarks, the art of growing trees in containers was introduced to Japan.

The Japanese developed Bonsai along certain lines due to the influence of Zen Buddhism and the fact that Japan is only 4% the size of mainland China. The range of landscape forms was thus much more limited. Many well-known techniques, styles and tools were developed in Japan from Chinese originals.

It is believed that the first tray landscapes were brought from China to Japan at least twelve hundred years ago, as religious souvenirs. A thousand years ago, the first lengthy work of fiction in Japanese included this passage: "A [full-size] tree that is left growing in its natural state is a crude thing. It is only when it is kept close to human beings who fashion it with loving care that its shape and style acquire the ability to move one". The first graphic portrayals of these in Japan were not made until about eight hundred years ago.



One of the early images of Penjing in China

All things Chinese fascinated the Japanese, and at some point the Chinese Chan Buddhism also was imported and became Zen Buddhism.

Chinese Chan Buddhism also was imported and became Zen Buddhism in Japan. Finding beauty in severe austerity, Zen monks – with less land forms as a model -- developed their tray landscapes along certain lines so that a single tree in a pot could represent the universe. The Japanese pots were generally deeper than those from the mainland, and the resulting gardening form was called hachi-no-ki, literally, the bowl's tree. A folktale from the late 1300s, about an impoverished samurai who sacrificed his last three dwarf potted trees to provide warmth for a travelling monk on a cold winter night, became a popular Noh theatre play, and images from the story would be depicted in a number of media forms, including woodblock prints, through the centuries.

Everyone from the military leader shoguns to ordinary peasant people grew some form of tree or azalea in a pot or abalone shell. By the late eighteenth century a show for traditional pine dwarf potted trees was begun to be held annually in the capital city of Kyoto. Connoisseurs from five provinces and the neighboring areas would bring one or two plants each to the show in order to submit them to the visitors for ranking or judging. The town of Takamatsu (home of Kinashi Bonsai village) was already growing fields of partly-shaped dwarf pines for a major source of income.

Different sizes and styles were developed over the next century; catalogs and books about the trees, tools, and pots were published; some early formal shows were held. Copper and iron wire replaced hemp fibers for shaping the trees. Containers mass-produced in China were made to Japanese specifications and the number of hobbyists grew.

Following the Great Kanto Earthquake which devastated the Tokyo area in 1923, a group of thirty families of professional growers resettled twenty miles away in Omiya and set up what would become the center of Japanese Bonsai culture; Omiya Bonsai village. In the 1930s as formal displays of Bonsai became recognized, an official annual show was allowed at Tokyo's Metropolitan Museum of Art.



At the second Kokufu Bonsai Ten, December 1934

The long recovery from the Pacific War saw Bonsai become mature and cultivated as an important native art. Apprenticeship programs, greater numbers of shows, books and magazines, and classes for foreigners spread the word. The use of custom power tools matched with an intricate knowledge of plant physiology allowed a few masters to move from the craft approach to a truly artistic-designing phase of the art.

Recently, Bonsai – seen too often as just a tired pastime for the elderly – now even has a version becoming popular among the younger generation with easy-to-care-for mini-trees and landscapes, unwired and wilder-looking, using native plants.



THE WEST - Although known to a limited extent outside Asia for three centuries, only recently has Bonsai truly been spread outside its homelands.

In 1604, there was a description in Spanish of how Chinese immigrants in the tropical islands of the Philippines were growing small ficus trees onto hand-sized pieces of coral. The earliest-known English observation of dwarf potted trees (root-over-rock in a pan) in China/Macau was recorded in 1637. Subsequent reports during the next century also from Japan were root-over-rock specimens. Dozens of travelers included some mention of dwarf trees in their accounts from Japan or China. Many of these were repeated in book reviews and excerpted articles in widely distributed magazines. Japanese dwarf trees were in the Philadelphia Exposition in 1876, the Paris Expositions of 1878 and 1889, the Chicago Expo of 1893, the St. Louis World's Fair of 1904, the 1910 Japan-Britain Exhibition, and at the 1915 San Francisco Exposition.

The first European language book (French) entirely about Japanese dwarf trees was published in 1902, and the first in English in 1940. Yoshimura and Halford's *Miniature Trees and Landscapes* was published in 1957. It would become known as "Bible of Bonsai in the West," with Yuji Yoshimura being the direct link between Japanese classical Bonsai art and progressive Western approach which resulted in elegant, refined adaptation for the modern world. John Naka from California extended this sharing by teaching in person and in print first in America, and then around the world further emphasizing the use of native material.

It was by this time that the West was being introduced to landscapes from Japan known as *saikei* and a resurgence from China as *penjing*. Compositions with more than a single type of tree became accepted and recognized as legitimate creations.

Over the years, slight innovations and improvements have been developed, primarily in the revered old Bonsai nurseries in Japan, and these have been brought over bit-by-bit to our countries by visiting

teachers or returning traveler enthusiasts. Upon their return from Japan, teachers would immediately try out a new technique or two in front of students at previously scheduled workshops. The new Japanese techniques could then be disseminated further and this living art form continued to be developed.

Most of the earlier books in European languages, for the most part, leaned more towards basic horticultural knowledge and techniques for keeping the trees alive. Western science has been increasing our awareness of the needs and processes of the living trees and other plants in our compositions. At the same time, published material has shifted towards explaining the aesthetics involved in styling and shaping. Large permanent collections began to be increasingly set up around the world, including Scotland, Hungary, Australia, and Korea, and numerous shows, exhibitions and conventions became annual events for enthusiasts and the general public.

With the release of The Karate Kid movies interest in the Bonsai art/hobby was spread amongst teens as well.

Chapter 3

Bonsai styles

Over the years many styles to classify Bonsai trees have been advanced, closely resembling circumstances in nature. These styles are open to personal interpretation and creativity, meaning that trees do not necessarily need to conform to any form. Still, the styles are important to gain a basic understanding of shapes and can serve as guidelines to successfully train miniature trees.



Field Maple (Acer Campestre) in summer and winter, by Walter Pall.
Age: 40 years, height 2'6" / 75 cm



Broom style Bonsai

Hokidachi The broom style is suited for deciduous trees with extensive, fine branching. The trunk is straight and upright and does not continue to the top of the tree; it branches out in all directions at about 1/3 the height of the tree. The branches and leaves form a ball-shaped crown that is also a stunning sight during winter months.



Formal upright Bonsai style *Chokkan* The formal upright style is a very common form of Bonsai. This style often occurs in nature, especially when the tree is exposed to lots of light and does not face the problem of competing trees. For this style, tapering of the upright-growing trunk must be clearly visible. The trunk must therefore be thicker at the bottom and must grow increasingly thinner with the height.



Informal upright Bonsai style *Moyogi* The informal upright style is common in both nature and in the art of Bonsai. The trunk grows upright roughly in the shape of a letter 'S' and at every turn branching occurs. Tapering of the trunk must be clearly visible, with the base of the trunk thicker than the higher portion.



Slanting Bonsai style *Shakkan* As a result of the wind blowing in one dominant direction or when a tree grows in the shadow and must bend toward the sun, the tree will lean in one direction. With Bonsai, the leaning style should grow at an angle of about 60 - 80 degrees relative to the ground. The roots are well developed on one side to keep the tree standing. On the side toward which the tree is leaning, the roots are clearly not as well developed.



Cascade Bonsai style *Kengai* A tree living in nature on a steep cliff can bend downward as a result of several factors, like snow or falling rocks. These factors cause the tree to grow downwards. With Bonsai it can be difficult to maintain a downward-growing tree because the direction of growth opposes the tree's natural tendency to grow upright.

Cascade Bonsai are planted in tall pots. The tree should grow upright for a small stretch but then bend downward.



Semi cascade Bonsai style *Han-kengai* The semi-cascade style, just like the cascade style, is found in nature on cliffs and on the banks of rivers and lakes. The trunk grows upright for a small distance and then bends downwards/sideways. Unlike the cascade style, the semi-cascade trunk will never grow below the bottom of the pot. The crown is usually above the rim of the pot.



Literati Bonsai style *Bunjingi* In nature this style of tree is found in areas densely populated by many other trees and competition is so fierce that the tree can only survive by growing taller than all others around it. The trunk grows crookedly upward and is completely without branching because the sun only hits the top of the tree.



Windswept Bonsai style *Fukinagashi* The windswept style also is a good example of trees that must struggle to survive. The branches as well as the trunk grow to one side as if the wind has been blowing the tree constantly in one direction. The branches grow out on all sides of the trunk but will all eventually be bent to one side.



Double trunk style Bonsai *Sokan* The double trunk style is common in nature, but is not actually that common in the art of Bonsai. Usually both trunks will grow out of one root system, but it is also possible that the smaller trunk grows out of the larger trunk just above the ground. The two trunks will vary in both thickness and length, the thicker and more developed trunk grows nearly upright, while the smaller trunk will grow out a bit slanted.



Multitrunk Bonsai style *Kabudachi* In theory the multi trunk style is the same as the double trunk style, but with 3 or more trunks. All trunks grow out of a single root system, and it truly is one single tree. All the trunks form one crown of leaves, in which the thickest and most developed trunk forms the top.



Forest Bonsai style

Yose-ue The forest style looks a lot like the multi-trunk style, but the difference is that it is comprised of several trees rather than one tree with several trunks. The most developed trees are planted in the middle of a large and shallow pot. The trees are planted not in a straight line but in a staggered pattern, because this way the forest will appear more realistic and natural.



Growing on a rock Bonsai style

Seki-joju On rocky terrain, trees are forced to search for nutrient rich soil with their roots, which can often be found in cracks and holes. The roots are unprotected before they reach the ground so they must protect themselves from the sun: a special bark grows around them. With Bonsai the roots grow over a rock into the pot.



Growing in a rock Bonsai style *Ishisuki* In this style the roots of the tree are growing in the cracks and holes of the rock. This means that there is not much room for the roots to develop and absorb nutrients. Trees growing in rocks will never look really healthy, thus it should be visible that the tree has to struggle to survive. It is important to fertilize and water often, because there is not much space available to store water and nutrients.

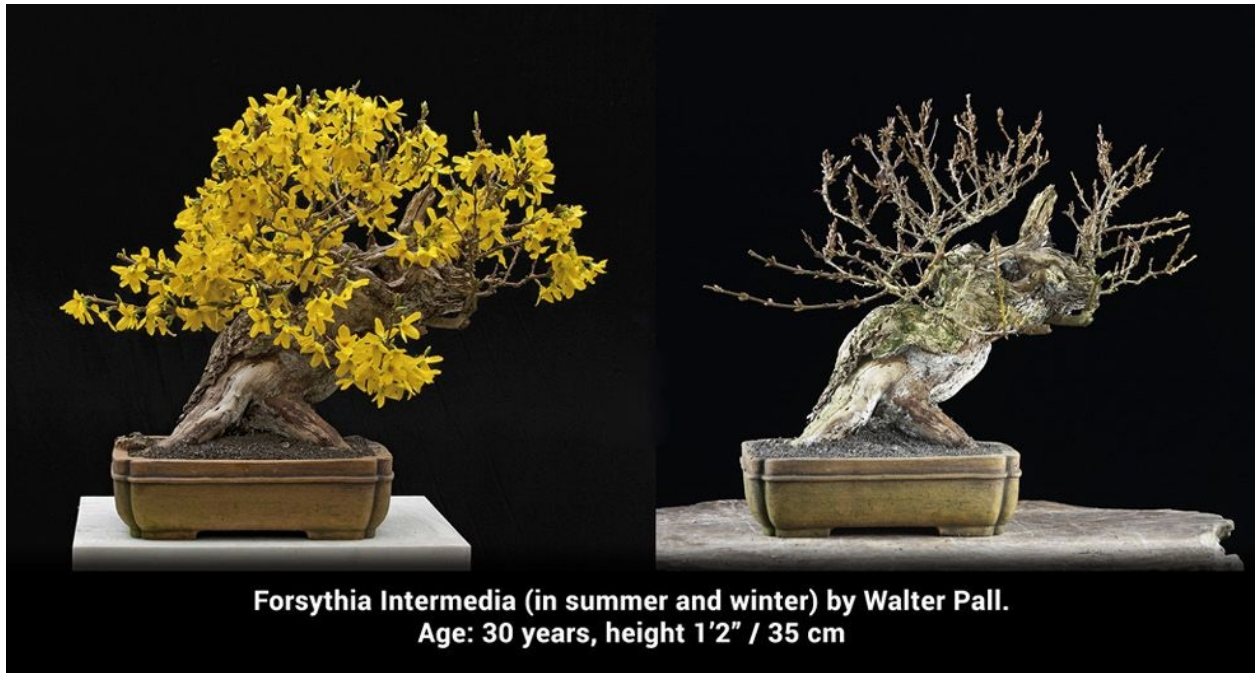


Raft Bonsai style *Ikadabuki* Sometimes a cracked tree can survive by pointing its branches upward. The old root system can provide the branches with enough nutrients to survive. After a while new roots will start growing, eventually taking over the function of the old root system. The old branches that now point into the air develop into trunks with multiple branchings.

Chapter 4

Selecting your Bonsai

When selecting a Bonsai keep in mind where you want to put it: indoor or outdoor? Picking the right tree species is crucial to keep your Bonsai healthy.



Indoor Bonsai

A common misconception about Bonsai trees is that they should be kept indoors. In fact, most Bonsai trees should be placed outside, where they are exposed to the four seasons just like normal trees are. Only tropical and subtropical plants can survive in the indoor climate of your house; where temperatures are high and stable throughout the year.

Alright, so I need a tropical Bonsai tree. Which one?

There are several trees that you can grow indoor, but the most common (and the easiest to care for) is the Ficus. The Ficus is tolerant to low humidity and can withstand quite a lot; a good choice for beginners.

Other popular indoor Bonsai trees include the Crassula (Jade), the Ligustrum (Privet), the Carmona (Fukien Tea), the Schefflera Arboricola (Hawaiian Umbrella) and the Sageretia (Sweet Plum).

Indoor Bonsai tree care

Caring for an indoor Bonsai tree is different from that of normal potted house plants. The main reason is that Bonsai trees are planted in small pots and therefore have limited storage for nutrients and water. More important is that tropical trees are used to much light and high humidity; circumstances that are quite difficult to create indoors.

Specific care of indoor Bonsai species

Light

The main problem with keeping a tropical indoor Bonsai tree is that the intensity of light indoors is much lower than outside. Trees won't die immediately when light intensity is too low, but growth will decrease, eventually weakening the plant. Therefore, make sure to place your Bonsai at a bright spot, preferably directly in front of a window facing the

Bonsai at a bright spot, preferably directly in front of a window facing the south.

Even when you have a window facing the south, chances are that the intensity of light is still too low. Artificial lighting can help, for example by using fluorescent lighting (with radiating growth-friendly spectra) or light-emitting diode lighting about 10 hours a day.

Humidity

Another issue with keeping a tropical Bonsai tree indoors is that the tree needs a relatively high humidity, much higher than the indoor conditions of your house (especially when you use heating or air conditioning). You can increase humidity near your Bonsai tree by placing it on a humidity tray filled with water and by misting your tree a few times a day. What also helps is to circulate air from outside, by opening a window during the day.

Watering and fertilizing

The most important rule is; never water on a routine. Ignore the label attached to your Bonsai tree which states you need to water every 'x' days. Instead, monitor your tree and water when needed. Please read the watering and fertilizing pages for more detailed information.

Temperature

Tropical tree species need relatively high temperatures throughout the year, similar to the standard room temperature of your living room.

Subtropical Bonsai trees can withstand somewhat lower temperatures, and generally thrive when they enjoy a winter season with temperatures well below that of the standard room temperature.

To summarize, make sure to select the right tree species and take into account the specific care guidelines for indoor trees, and you will do just fine!

Outdoor Bonsai

Most trees should be placed outside, exposed to the four seasons, with temperature changes and a relatively high humidity. These trees can only thrive in your garden or balcony.



Alright, so I need an outdoor Bonsai tree. Which one?

If you live in a region with a subtropical or Mediterranean climate, you can grow many species outside which cannot endure frost, but some species must be protected from the heat and intensive sunlight.

Olive (*Olea europea*), pomegranate (*Punica granatum*), fuchsia, Chinese elm (*Ulmus parvifolia*), mulberry (*Morus*), corkbark oak (*Quercus suber*), Chinese privet (*Ligustrum sinensis*) are well suited. The Japanese (*Acer palmatum*) and trident maples (*Acer buergerianum*) can grow well if the winters are cool enough for them to go into winter dormancy. Asian hackberry (*Celtis sinensis*), Japanese black pine (*Pinus thunbergii*), bald cypress (*Taxodium distichum*) and some mediterranean juniper species can also thrive in a subtropical and mediterranean climate. Cherries (*Prunus*), apples (*Malus*) and other species that need a cooler climate will most likely not grow well.

Regions with a temperate climate are good for many species, especially most of the nice imported Japanese species can be grown successfully. Subtropical and Mediterranean trees can also be chosen if they can be protected from frost, in a greenhouse for example.

In a maritime climate with moist summers you might need very well-draining soil and some species which need full sunlight might not be perfectly happy.

In a continental climate with hot summers and cold winters you will have to provide semi-shade in the summer and good protection against frost if you don't want to be limited to a few very hardy native tree species.

Outdoor Bonsai tree care

Caring for an outdoor Bonsai tree is different from that of normal potted plants. The main reason is that Bonsai trees are planted in small pots and therefore have limited storage for nutrients and water. More important is that Bonsai trees from temperate climates need their period of winter dormancy. Do note that most species need some protection from frost and strong winds during that time.

Specific care of outdoor Bonsai species

Light

Most outdoor Bonsai trees need sunlight for at least a few hours a day. Their internodes and leaves will grow too large otherwise and they would get prone to pests and diseases. Most conifers should be placed in full sun for healthy growth.

Humidity

On hot days and in a paved place surrounded by walls the trees can suffer from low humidity. You can increase humidity near your Bonsai tree by placing it on a humidity tray filled with water and by misting your tree a few times a day. What also helps is to wet the shelves, floors and walls around the trees.

Watering and fertilizing

The most important rule is; never water on a routine. Monitor your tree and only water when needed. This can be once in three days or several times a day, depending on the weather, species and size. Please read the watering and fertilizing pages for more detailed information.

Temperature

Outdoor trees can endure high temperatures as well as very cold weather if they are cared for properly. It is important for most species to provide protection from strong frost in winter. In spring, when the new leaves emerge, take care that the trees are protected even from light night frost.

To summarize, make sure to select the right tree species and take into account the specific care guidelines for outdoor trees, and you will do just fine!

Chapter 5

Care Guides

In this guide we take a closer look into tree-species (also; Bonsai tree types) that are often used for growing Bonsai. We discuss the guidelines for the ten most popular tree species in detail. Each species has specific requirements for its cultivation, training and care, so identifying your tree is crucial to take proper care of it.



Japanese Maple (*Acer Palmatum Kiohime*) in training in fall, by Walter Pall.
Age: 100 years, height 1'6" / 45 cm

[01. Ficus](#)



[02. Juniper](#)



[03. Maple](#)



[04. Chinese Elm](#)



[05. Japanese Elm](#)



[06. Privet](#)



[07. Azalea](#)



[08. Black Pine](#)



[09. Carmona](#)



[10. Olive](#)



Ficus

Fig; Ficus Retusa or Ginseng



Fig; Ficus Retusa or Ginseng. Ficus Microcarpa by Walter Pall. Age: 30 years, height 2'60cm

The ficus genus belongs to the family of mulberry plants (*Moraceae*). There is differing information about the number of existing ficus species, there may be between 800 and 2000. They live on all continents in the tropical regions. Some figs can become very large trees with a crown circumference of more than 1000 ft. (300 m).

Typical for all fig Bonsai species is their milky latex sap, which will leak

from wounds or cuts. The tropical figs are evergreen trees, small shrubs or even climbing plants. Some of them can produce nice flowers, while most ficus species have hidden flowers in small receptacles from which the fruit grow. Only specialized pollinating fig wasps can pollinate those hidden flowers.

Most ficus Bonsai trees can produce aerial roots in their natural habitat, which are often presented in appealing Bonsai creations with many aerial root pillars or root over rock styles. To enable aerial root growth in our homes a humidity of nearly 100% must be achieved artificially. You can use a glass cover, fish tank or a construction with transparent sheets for this purpose.

Specific care guidelines

Position: The ficus tree is an indoor Bonsai that cannot endure frost. It can be kept outside in summer, if temperatures are above 59F (15 degrees C) and it needs lots of light – full sun is ideal. A shady position is unfavorable. The temperature should be kept relatively constant. Figs can endure low humidity due to their thick, waxy leaves, but they prefer a higher humidity and need extremely high humidity to develop aerial roots.

Watering: The Ficus should be watered normally, which means it should be given water generously whenever the soil gets slightly dry. The Ficus can tolerate occasional over-or underwatering. Soft water at room temperature is perfect. Daily misting to maintain humidity is advised, but don't overdo this as fungal problems can appear. The warmer the position of the fig during winter the more water it needs. If it overwinters at a cooler place it only needs to be kept slightly moist.



Ficus Salicaria Bonsai.

Fertilizing: Fertilize weekly or every two weeks during summer, every two to four weeks during winter (if the growth doesn't stop). Liquid fertilizer can be used as well as organic fertilizer pellets.

Pruning: Regular pruning is necessary to retain the tree's shape. Prune back to 2 leaves after 6-8 leaves have grown. Leaf pruning can be used to reduce leaf size, as some species normally grow large leaves. If a considerable thickening of the trunk is desired, the ficus can be left to grow freely for one or two years. The strong cuts that are necessary afterwards don't affect the ficus' health and new shoots will grow from old wood. Larger wounds should be covered with cut paste.

Wiring: Wiring of thin to medium-strong ficus branches is easy as they are very flexible. The wires should be checked regularly though, as they cut into the bark very quickly. Strong branches should be shaped with guy-wires because those can be left on the tree for a much longer period.

Special training techniques: Ficus has the ability to fuse plant parts that touch each other with some pressure. So branches, roots or trunks can fuse together and form appealing structures. You can use this feature for

example to tie a lot of young plants together and let them fuse to build one strong single trunk. Fig trees also react very well to approach-grafting of branches and roots and to other grafting techniques. If the growing conditions are ideal, even aerial roots taken from one part of the tree can be grafted in a different position. For faster closing of large wounds young plants, shoots or aerial roots can be grafted across the wound. The grower can work on fig trees with nearly unlimited creativity, which increases the appeal of ficus as a Bonsai plant considerably.

Repotting: Repot the tree during spring every other year, using a basic soil mixture. Ficus tolerates root-pruning very well.

Propagation: Cuttings can be planted at any time of the year, but highest success is with mid-summer growth. Airlayering will work best in spring (April – May). Growing ficus plants from seed in spring also works easily in most cases.

Acquisition: Ficus plants are available as cheap Bonsai or pot plants in nearly every home-store, building supplies store or nursery. Mass-produced cheap Bonsai in most cases bring a lot of problems with them, like ugly scars from rusty wire that bit into the bark, unattractive shapes, often poorly grafted branches in odd positions, bad soil and sometimes inappropriate pots without drainage holes. These trees are an affordable way to start growing Bonsai though. Specialized Bonsai traders offer everything from young plants, pre-Bonsai and pre-styled ficus trees up to high-value Bonsai, in most cases well-tended and of good quality.

Pests / diseases: The fig species are quite resistant against pests. Depending on the location, especially in winter, a number of problems can occur anyway. Dry air and a lack of light weaken the ficus and often result in leaf drop. In a poor condition like this, ficus are sometimes infested with scale or spider mites. Customary systemic insecticide sticks to put into the soil or insecticide / miticide sprays will work, but the weakened ficus' living conditions must also be improved. Plant lamps (shining 12 – 14 hours a day) and frequent misting of the leaves during the recovery can be helpful.

Juniper

Juniperus



Kishu Juniper by Mauro Stemberger. Height 14" / 35 cm

The juniper is a genus of about 50 - 70 species within the cypress family. They are evergreen coniferous trees or shrubs, which are very popular for Bonsai purposes. The most popular species are the Chinese juniper (*Juniperus chinensis*), the Japanese Shimpaku (*Juniperus sargentii*), the Japanese needle juniper (*Juniperus rigida*), the two central European species: the savin (*Juniperus sabina*) and the common juniper (*Juniperus communis*), and other species and cultivars from many parts of the world which are available in our nurseries.

The foliage colors range from dark blue-greens to light greens and the

foliage can either be scale-like or needle-like. Scale junipers usually have needle-like foliage when they are young (called juvenile foliage), the typical scale-like foliage appears later. After heavy pruning or bending, overwatering or other stress, juvenile foliage will grow again. It can last a few years until enough normal scale-like foliage has grown and all the needle-like foliage can be removed.

The berry-like cones are round or oval, depending on the species they measure up to an inch (2 cm) and they need a year or two to ripen. The seeds are round or edged. The cones are often eaten by birds who spread the germinable seeds later with their droppings.

Junipers are very suitable for creating deadwood (called jin and shari). This is due to the fact that live veins below a broken or for other reasons dying branch will dry out and die. This results in natural deadwood which is peeled, polished and bleached by climatic conditions and is very durable in case of the juniper. The triad of green foliage, reddish-brown or yellowish-brown bark and silvery white deadwood is very appealing.

Specific care guidelines

Position: Place the tree outside, year-round, on a bright spot with lots of sunlight. The Juniper can survive indoor if you create perfect conditions (lots of light), but it will do much better outside. During the winter protect the tree once temperatures drop below 14 F (-10 degrees C). Some species change their foliage color during frosty periods to a purplish brown which is connected with their frost protection mechanism. In spring they will turn green again.

Watering: Be careful not to water too much, as the juniper roots don't like soil wetness. Before you water, the soil should almost dry out. Misting the tree can be done regularly, especially after the tree has been repotted because it benefits from air humidity.

Feeding: Use normal organic fertilizer pellets or balls every month during the growth season or a liquid fertilizer each week. If strong growth is desired some higher nitrogen levels can be applied in spring.

Pruning: To develop the foliage pads, pinch long shoots that stick out of the silhouette at the base with sharp scissors throughout the growth season. Do not trim the juniper like a hedge because the removal of all

growing tips will weaken the tree and the cuts will turn the needles brown. When the foliage pads become too dense they must be thinned out with sharp scissors at the base.

The Juniper Bonsai is generally a strong tree that also withstands aggressive pruning quite well. But it cannot bud again from bare tree parts, so take care that there is some foliage left on every branch you want to keep alive.

Wiring: Junipers that are produced for Bonsai purposes are already wired quite heavily in most cases when they are still very young. Dramatically twisted shapes are very popular and correspond with the natural shapes that used to grow in the Japanese mountains in former times. Junipers can be strongly bent, if necessary wrapped with raffia or tape as a protection, but you must be careful with parts that possess deadwood. Those parts break easily. If they are large and old, you can split the deadwood off in order to bend the more flexible living parts.

The foliage pads should be wired and fanned out after thinning when necessary, to let light and air get in. Otherwise the inner parts of the foliage pads will die. In addition to this, the danger of pest infestation is increased if the pads are too dense. From the aesthetic point of view we also want to achieve unobstructed structures and want to prevent the juniper from looking like broccoli.

Repotting: Once every two years, very old trees at longer intervals, using a basic (or somewhat more draining) soil mixture. Don't prune the roots too aggressively.



Example of a Juniper Bonsai tree with extensive deadwood, by Mauro Stemberger

Propagation: Use seeds or cuttings.

Acquisition: Many well-suited juniper species in different sizes are offered in most nurseries. You can often find good Bonsai raw material there.

Specialized Bonsai traders offer everything from young plants, pre-Bonsai and pre-styled juniper trees up to high-value Bonsai, in various styles and shapes.

Pests / diseases: If junipers are well cared for and placed in an ideal position they are quite resistant against pests. It is important though not to let the foliage pads get too dense, because otherwise pests can settle in them more easily. During winter the junipers must be kept in a place with enough light and they must be checked for pests regularly because pests can even occur in winter. Junipers can sometimes get infested with spider mites, juniper scale, juniper aphids and juniper needle miners as well as juniper webworms for example. Customary insecticide / miticide sprays will help but you should also find the reason why the tree was prone to infestation.

A big problem is fungal rust. The diverse juniper species and cultivars have a very different level susceptibility to rust fungus, there are also some which are regarded as resistant. As a rule of thumb, the blue-green junipers are more resistant than those with yellowish-green foliage. The Japanese junipers are also not infested very often.

On the internet you can find files which list many juniper species and cultivars and their susceptibility / resistance level to rust fungus.

The rust fungus infests the junipers permanently and causes swellings from which hard, brown galls emerge. In spring, during rainy weather, the galls produce large, orange, gelatin-like tendrils, full of spores, which infest the leaves of pear trees (but there are also types of rust fungus which use hawthorn or crabapples as a second host instead of the pear).

The fungus causes orange spots on the pear leaves. In late summer brownish proliferations grow from the bottom sides of the leaves which release spores that infest junipers again.

While the pear trees in most cases are not fatally affected – they are newly infested each year again and they can even be treated successfully with a fungicide, an infested juniper normally cannot be cured. The visibly infested branches die in most cases and the fungus can emerge on other tree parts. Removing the parts with the swellings and galls is no guarantee at all that the fungus will not reappear. Although some people have a different opinion, it is best to immediately burn up a rust-infested juniper or put it into the garbage instead of your

bag up a fast infected jumper or put it into the garbage instead of your compost heap.

Maple

Acer Palmatum



Japanese Maple (Acer Palmatum) by Walter Pall. Age: 50 years, height 2'2" / 65 cm

Originally from China and Japan, the *Acer Palmatum* (Japanese maple Bonsai) is one of the most popular Bonsai species. It has distinctive opposing five pointed leaves. The bark of young trees is usually green or light-red and changes into brown or light gray with age. Protect the thin leaves from too much sunlight, as they easily burn.



Japanese Maple in winter, by Walter Pall

Specific care guidelines

Position: Place the tree outdoors year round and it should be protected from direct sunlight in the afternoon, but morning/evening sun is no problem. The Japanese Maple is hardy, but should be protected during the winter when temperatures drop below 14F (-10 degrees C).

Watering: Daily watering is necessary, especially when they start growing in early spring, assuming the soil drains well.

Feeding: Use a normal fertilizer once every three weeks in the growth season.

Pruning: Normal pruning can be done year-round, but style pruning should be done in autumn to prevent excessive bleeding (it is also advisable to apply cut-paste). Cut new growth back to two pairs of leaves. Leaf pruning (removal of leaves during the growth season) can be done every other year in early summer to encourage smaller leaves. Remove all the leaves, leaving the leaf-stems intact.

Repotting: Repot Maples once every one to two years, removing some of the roots is important. Older trees may be repotted less frequent.

Propagation: Either from seeds or cuttings in summer.

Chinese Elm

Ulmus Parviflora



Field Elm (Ulmus Holandica) by TJ Klein. Age: 15 years, height 1'12" / 60 cm

The *Ulmus Parvifolia* (Chinese Elm Bonsai) grows a fine network of twigs and branches, making it perfect for Bonsai purposes. The Elm is often confused with *Zelkova* species, but when comparing both leaves the difference is noticeable. The Chinese Elm is the most commonly used Elm species, although its other varieties are also suitable for growing Bonsai trees.



Example of a Chinese elm Bonsai tree

Specific care guidelines

Position: Grows well in both sun and partial shade. The Ulmus can withstand cold well and can be placed outside also during the winter. An Ulmus bought as an indoor tree can be placed outside as well, but protect it during the winter, or place it inside in a cold but bright room.

Watering: Keep your Elm slightly moist, when watering do it thoroughly.

Pruning: Reacts well to regular pruning, which will result in the tree growing a dense branch structure. Allow shoots to extend 3 or 4 nodes then prune back to 1 or 2 leaves. Wait till late autumn when pruning large branches of the Chinese elm.

Repotting: Repotting can be done once every two years, using a standard potting soil.

Propagation: Only by cuttings.

Japanese Elm *Zelkova*



Zelkova Serrata by Walter Pall. Age: 44 years, height 1'8" / 50 cm The *Zelkova*, originally from Japan and China, is related to the *Ulmus* genus, which is the genus of the European and American elms. The *Zelkova* is in fact quite similar to the Chinese elm, but it has single-toothed leaves whereas the *Ulmus* has double-toothed leaves. The *Zelkova* leaves are oval, toothed and pointed.



Example of a Zelkova (Japanese Elm)

Specific care guidelines

Position: Although an outdoor tree, when acclimatized to indoor conditions (often the case when bought in a garden center or so) it should be kept indoors at least during the winter. When placed outside however, protect the tree well during the winter. The tree prefers much light, not necessarily direct sunlight.

Watering: Water regularly, no particularities.

Feeding: Fertilize the tree once or twice every month from spring till autumn.

Repotting: Repot the tree once every two years, less often when the tree matures, using a basic Bonsai soil mixture.

Propagation: Use seeds or cuttings.

Privet *Ligustrum*



Privet (Ligustrum Ovalifolium) by Harry Harrington. Age: 80 years, height 1'3" / 37 cm The Ligustrum (Privet) botanical family consists of many subspecies and cultivars (>50) with a diversity of leaf colors and forms. The Ligustrum is often used for hedging, which can be a source of great (thick trunked) Bonsai material. The tree is very strong and makes for a popular beginner's Bonsai. The most common species of privet include the Ovalifolium (oval leaved), Sinense (Sinensis), Japonicum, Lucidum and the Vulgare (common privet).

Specific care guidelines

Position: The privet prefers a bright position, with direct sunlight at least part of the day. Although the Ligustrum is an outdoor species (it only needs some protection when temperatures drop below 14F (-10 degrees C), it is also sold as indoor tree (in this case the tree should be placed inside during the winter).

Watering: Normal watering is fine.

Feeding: Use a normal Bonsai fertilizer about once every three weeks during the growth season.

Pruning: Style the tree in early spring, before it starts to grow. Normal maintenance pruning can be done anywhere in the growth season.

Repotting: Repot the tree every one or two years using a basic Bonsai soil mixture.

Propagation: Use cuttings during the summer or plant seeds.

Azalea Rhododendron



Azalea (Rhododendron) by TJ Klein. Age: 40 years, height 1'12" / 60 cm The Rhododendrus genus consists of over 400 species, with the Azalea Satsuki and Azalea Kurume commonly used for Bonsai. The Azalea is well known for its spectacular flowers, which come in many bright colors. Its leaves are dark green.



Azalea Bonsai in bloom

Specific care guidelines

Position: Place the Azalea at a bright spot, but not in full afternoon sun. During wintertime, protect the tree from freezing temperatures.

Watering: General watering practice is fine, but note that the Azalea Bonsai dislikes hard-water. Rainwater can be a better solution.

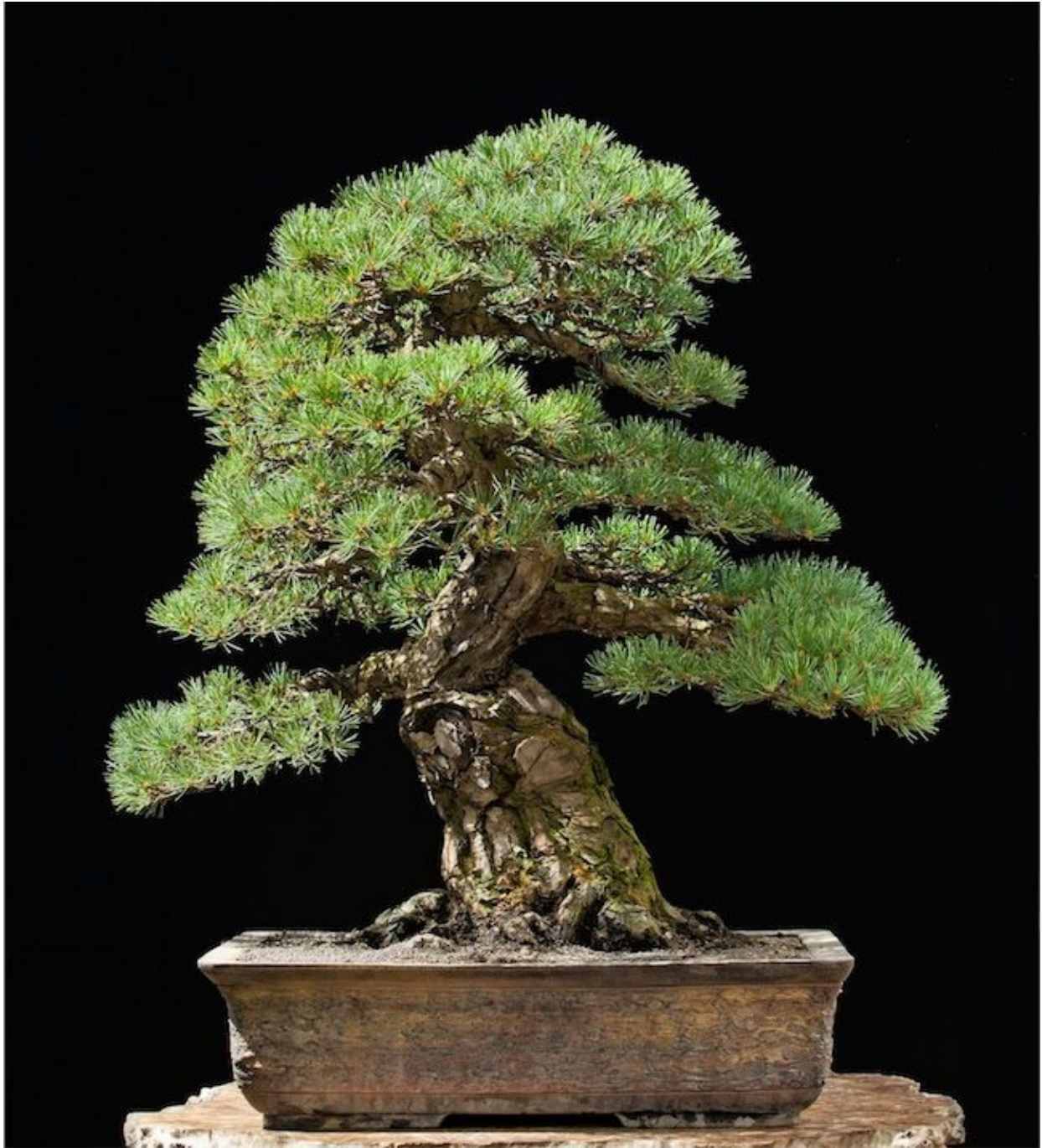
Feeding: Once every two or three weeks during its growth season. If the tree flowers, quit feeding altogether.

Repotting: Every two years, after flowering comes to an end. Apply a special soil which is lime-free.

Propagation: From cuttings during summer.

Pines

Pinus thunbergii and *Pinus parviflora*



Japanese White Pine (Pinus Pentaphylla) by Walter Pall. Age: 70 years, height 2'2" / 65 cm

This guide also applies in large extent to other species of Pines. Most common species include; *Pinus Thunbergii* (Japanese Black Pine), *Pinus Sylvestris* (Scotch Pine), *Pinus Muqo* (Mountain Pine) and the *Pinus*

Parviflora (Japanese White Pine).

Although not easy to care for (and not at all easy to style either), the Japanese Black Pine is a classic species of tree to use for Bonsai purposes, also very popular in Japan. Pinus species that have short needles are most suitable to grow Bonsai from. Black Pines are very tolerant of poor conditions, surviving in nature on nutrient-lacking soils. The tree has thick needles up to 4" (12cm) long, which can be shortened by regular pinching.



Example of a Pine Bonsai tree, by Mauro Stemberger

Specific care guidelines

Position: Outside with lots of sun, this also helps decrease the needle size (needles grow longer if the tree doesn't get enough sunlight). Pine trees are very hardy, but still need to be protected during the winter as they are planted in small pots.

Watering: Be careful not to over-water, as Pines dislike permanent moist. Good drainage is required.

Feeding: Use a normal fertilizer on a monthly base to keep the tree healthy.

Pruning: Pines have to be handled with care, although they can withstand pruning quite well; never style the tree more than once every year (preferably in early spring).

Repotting: Repot in spring before the buds begin to swell, every two to three years. Preferably use a well draining soil mixture.

Propagation: From seeds in April, otherwise use cuttings during the summer.

Fukien Tea

Carmona



Carmona (Fukien Tea), owner unknown. Age: 30 years, height 1'8" / 50 cm

Originating from China (from the province Fujian, hence the name), where it's still very popular for Penjing purposes, the Fukien is a popular indoor Bonsai tree. Its small dark-green shiny leaves are covered with

hairs. In late spring/early summer small flowers appear that later on make place for small dark berries.

Specific care guidelines

Position: The Fukien Tea is an indoor tree, which can only be placed outside in warm climates. It prefers a bright spot without too much direct sunlight though. The best temperature is around 68F (20 degrees C), make sure it doesn't experience much lower temperatures.

Watering: Keep the tree slightly moist at all times, as it doesn't like droughts.

Feeding: Fertilize the tree once to twice every month from spring till autumn, less often during the winter.

Pruning: The Fukien tree can take pruning quite well, regular pruning will make the tree grow a dense branch structure.

Repotting: In early spring about every two years. Use a normal soil mixture.

Propagation: From seeds or by using cuttings in summer.

Olive

Olea europaea



Wild Olive, before and after styling, by Walter Pall. Age: 50 years, height 2'4" / 70 cm

The olive (*Olea europea*) is a tree commonly found in Mediterranean countries, where it is a tree with strong symbolic importance. You can use cultivated varieties (like the normal olive) but it is common to use the wild olive (*Olea europea silvestris*). The wild olive is of greater interest for Bonsai as these develop tiny leaves. In many cases these possess much-appreciated features like the presence of deadwood (jin or shari) and bark that indicate a high age and survival in hostile conditions. The Olive as Bonsai tree is easy to care for and very strong so it is a suitable choice for use as Bonsai.

Specific care guidelines

Position: Place the Olive Bonsai outside and at a sunny spot, this also helps to reduce the size of the leaves. Must be protected during the winter if temperatures get too low.

Watering: No specifics.

Feeding: Feed abundant, with a normal fertilizer monthly from spring to mid autumn.

Pruning: Strong pruning is recommended in late winter. The olive will respond with vigorous growth in the following spring. For maintenance pruning, cut back to 2-3 pairs of leaves, and in very vigorous (and healthy) specimens you can use defoliation.

Repotting: Repot in spring before the buds begin to swell, every three or four years. Preferably use a soil mix with good drainage.

Propagation: From seeds and cuttings.

Chapter 6

Techniques

Bonsai trees are normal plants, propagated like any other, but trained using sophisticated techniques to make and keep them miniaturized. The styling of Bonsai trees includes basic techniques like regular pruning and wiring, but also more advanced techniques such as creating deadwood. Caring for a Bonsai tree is not as hard as is commonly thought. However, as Bonsai trees are planted in small pots a few basic guidelines have to be followed when watering, fertilizing and repotting your trees.



Larch (Decidua) by TJ Klein. Age: 15 years, height 1'8" / 50 cm

Pruning

An occasional thorough styling as well as regular maintenance pruning is essential to create and maintain a miniature tree. When shaping a tree, deciding on which branches fit the design and which ones need to be removed can be very difficult. Take the tree's basic shape as given (do not try to make overly radical changes) and decide what should be the tree's front. Next, start thinking about which branches need to be pruned in order to improve the tree's overall design. After having styled the tree, regular pruning is crucial in forcing the tree to grow a dense foliage and fine branch structure, while remaining its shape.

Bonsai maintenance pruning

The goal of maintenance pruning is to maintain and refine the shape of a tree. Trees will concentrate most growth on the top and outer parts of the tree; it is important to prune these growth areas regularly in order to encourage growth closer to the inner parts of the tree.

When?

Maintenance pruning can be done throughout the growth season.



Pruning an oak using a Bonsai twig shear

How?

As mentioned previously, maintenance pruning is required to maintain a trees' shape. To do so, simply prune branches/shoots that have outgrown the intended canopy-size/shape using twig shears or a normal cutter (see photos 1 and 2, above). Do not be afraid to prune your Bonsai; it is important, especially in the outer and top areas, to prune regularly in

order to force the tree to distribute growth more evenly and develop a dense foliage.

As opposed to deciduous trees, pine trees and conifers should be pinched by hand. Using scissors to prune conifers would lead to dead brown foliage at the cuttings (see photo 1, below). To prevent this from happening hold the tip of the shoot between your thumb and pointing finger and carefully pull it away; the shoot will snap at its weakest point and no brown ends will appear (see photo 2, below).



Don't prune Pines or Conifers (left); pinch them with your fingers (right).

Bonsai style pruning

To give a tree its basic shape often involves pruning large branches. Deciding on which branches should stay and which ones should be removed can be difficult, not only because it is an irreversible action but also because it is part of deciding how the tree will look like. Before learning more about the techniques used for pruning Bonsai, you might want to take a look at the Bonsai progressions part of our website, where you will find examples of experienced Bonsai growers style-pruning nursery stock.

When?

For most trees, the early spring or late autumn is the right time to style-prune (just before and after the growth season). In the tree species section you can check information on your particular tree.

How?

Place the tree on a table at eye-level; first step is to remove all the dead twigs and leaves from the tree. Now take some time to observe your tree and decide which branches do not fit the desired design. A few guidelines are listed below, but deciding on the future design of your tree is a

are listed below, but deciding on the future design of your tree is a creative process, not necessarily bound by 'rules'.

A few basic guidelines:

- If two branches occur at the same height of the tree, keep one of them and remove the other.
- Remove vertical growing branches, which are too thick to bend.
- Remove branches with unnatural twists and turns.
- Remove branches that conceal the front of the trunk.
- Remove disproportionately thick branches from the top of the tree, as branches at the bottom should be thicker than at the top.

Pruning thick branches will result in creating ugly scars on the tree, but by using a special concave cutter you will reduce this effect significantly because of the indentation it makes when cutting off the branch (see photos below).



Pruning bigger branches should be done using a Concave cutter.

Finally, it is advisable to seal large cuttings with wound paste, available at most (online) Bonsai shops. The paste protects the wounds against infections and helps the tree to heal faster.

And then? Aftercare

After a tree has been style-pruned place it in the shade and out of the wind. Fertilize as you would do normally and let the tree recover from the styling for at least a few months.

Wiring

Wiring is an essential technique to style Bonsai trees. By wrapping copper-wire around the tree's branches you are able to set the shape and angle of the branches. When wiring a tree, start with its main branches. Thick branches need thick wiring; as a rule of thumb use wire of about 1/3 to 1/4 the thickness of the branch. Try to wire two branches of equal thickness with one piece of wire. It is important to maintain an edge of about 45° when wrapping wire around the branches, providing some room for growth.

When?

Wiring can be done year-round for most tree-species. During the growth season branches grow thicker quite fast and as a result the wire will cut into the bark, creating ugly scars. Check on your tree regularly and remove the wire on time.

Material?

Using the right material is essential for wiring Bonsai trees. Basically, two kinds of wire can be used: anodized aluminum and annealed copper. For beginners it is advisable to use the anodized aluminum, which is easier to work with and sold at most (online) Bonsai shops. Wire is available in a range of different thicknesses, varying from 1 to 8 mm (see photo 1, below). There is no need to purchase all the available wires; buying 1mm, 1.5mm, 2.5mm and 4mm thick wire should be perfect to start with on most trees. When wiring thick branches it is recommended to wrap them first with raffia, which will protect the branches from being damaged by the wire when bending them.



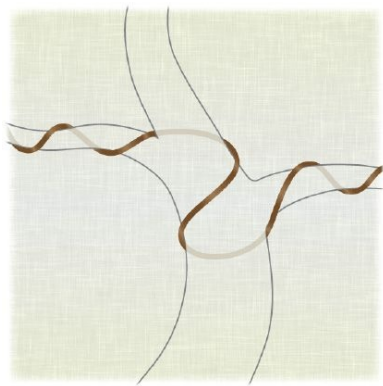
Bonsai wire. and a wired branch to be bent downwards.

How?

Try to wire two branches of similar thickness located near each other with one piece of wire (double-wiring, see photo 2, above) where possible, and wire the remaining branches separately (single-wiring). Wire all the branches you intend to shape before actually starting to bend them.

When wiring an entire tree, work from the trunk to the primary branches and then start wiring the secondary branches. As a rule of thumb, use wire of 1/3 of the thickness of the branch you are wiring. The wire should be thick enough to hold the branch in its new shape.

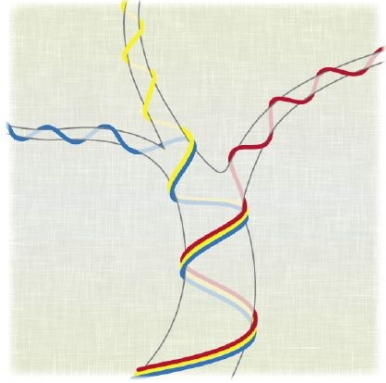
Both wiring techniques will be discussed in more detail now and information about how to safely bend the wired branches will be provided at the end of this page.



Double-wiring a Bonsai

1. First select the pair of branches you will wire; these have to be of the same thickness and located near each other on the tree. Do keep in mind that the wire should wrap around the trunk at least once (preferably twice) so the wire will not move when bending the branches later on.
2. Now cut off the right length of wire to wrap around both the branches.
3. Start with wrapping the wire around the trunk and proceed with the first branch. Wire from the base of the branch to the very tip before starting to wire the other branch. The wire should be wrapped around the branches at an angle of 45 degrees; this way the wire will enable the tree to grow thicker while remaining its new shape.
4. When you intend to bend a branch downwards directly at the trunk make sure the wire comes from below. The wire should come from above when bending a branch upwards.
5. After you have wired all suitable pairs of branches continue wiring the remaining branches using the single-wiring technique.

Single-wiring a Bonsai



1. Similar to the double-wiring technique, cut off the right length of wire and start with wrapping it at least twice around the trunk or main-branch at an angle of 45 degrees.
2. When multiple wires are applied at the same part of the trunk/branch try to put them neatly in line.
3. Now continue wiring the branch.

Bending the wired branches

After having wired the entire tree you can start bending and repositioning the branches. Use your hands to hold the outside of the branch with your fingers, now bend the branch from the inside of the curve with your thumbs. This way you reduce the risk of splitting branches by spreading the force around the outside of the branch. When a branch is in position stop moving it, as repeated bending will likely damage the branch. Try to bend straight sections of branches slightly to make it look more natural and aged.

And then? Aftercare

Place the tree in the shade and fertilize as you would normally do. Watch the tree closely during the growth season and remove the wires in time to prevent them from cutting into the bark. Do not try to recycle wire by unwinding it as this might damage the tree; instead, cut the wire at every turn making it much easier to remove.

Watering

How often Bonsai need to be watered depends on a wide range of factors, including species of tree, size and climate. Do not just water your tree every day, instead, monitor it carefully and water it once the soil gets slightly (but never completely) dry; it should be damp. When watering, do it thoroughly, to make sure the entire rootmass is reached.

How often?

As mentioned above, how often Bonsai trees need to be watered depends on too many factors to give exact guidelines. Instead, you need to learn to observe your trees and know when they need to be watered. The following general guidelines will help you to get Bonsai watering right:

- **Water your trees when the soil gets slightly dry** - This means you should not water your tree when the soil is still wet but only when it feels slightly dry; use your fingers to check the soil at around 0.4" (1cm) deep. Once you get more experienced you will be able to see (instead of feel) when a tree needs watering.
- **Never water on a routine** - Keep observing your trees individually, instead of watering them on a daily routine, until you know exactly what you are doing.
- **Use the right soil-mixture** - The soil-mixture greatly influences how often trees need to be watered, for most Bonsai trees a mixture of akadama, fine gravel and potting compost mixed together in a ratio of ½ to ¼ to ¼ should be fine. However, use a mixture that retains more water (by using more potting compost) when you cannot water your trees that regularly.

When?

It doesn't really matter at what time you water a Bonsai. Some advice to avoid watering (with very cold water) during the afternoon, when the soil has been warmed up by the sun and will cool down rapidly when using cold water. Though this can be taken into consideration, it should always be clear that you should water your tree no matter what time it is, as soon as the soil gets slightly dry!



Watering Bonsai trees.

How to water Bonsai trees?

As explained previously, water when the soil gets slightly dry. When the tree does require water though, it needs thorough soaking so the entire root system is wetted. To do so, keep watering until water runs out of the drainage holes, and possibly repeat the process a few minutes later.

Water a tree from above using a watering can with a fine nozzle; this will prevent the soil from being washed away (see photos 1 and 2, above). Using collected rain water is better (as it doesn't contain added chemicals), but when this is not readily available there is no problem in using normal tap water.

Fertilizing

As Bonsai trees are generally placed in small pots regular fertilization is required in order to replenish nutrients that are essential to the tree.

Using a special 'Bonsai fertilizer' can be convenient, but any fertilizer will do (be careful not to use too much though). Follow the instructions as stated on the fertilizer's packaging regarding quantity and timing.

Basic file parts of fertilizer

The three basic elements of any fertilizer are Nitrogen (N), Phosphorous (P) and Potassium (K), with each element serving different purposes. Nitrogen increases growth of leaves and stems, Phosphorus encourages healthy root growth and Potassium encourages growth of fruits and flowers. Different ratios of NPK are being used for different trees at different times of year, which is very important to take into account when fertilizing Bonsai.

When?

Fertilize during the entire growth season of the tree; from early spring till mid autumn. Indoor trees can be fertilized around the year. Although sometimes disputed, do not fertilize repotted trees for about a month; also do not fertilize sick trees.

Which fertilizer to choose?

It is very important to choose the right fertilizer for your Bonsai plants: during the early spring time use a fertilizer with a relatively high Nitrogen content (something like NPK 12:6:6) to boost the tree's growth. During the summer use a more balanced fertilizer, while during the autumn use a fertilizer to harden off the tree for the coming winter (like NPK 3:10:10). The mentioned NPK values are ratios, meaning 5:5:5 is in fact no different from 10:10:10 *etc.*

A few exceptions are worth pointing out: to encourage Bonsai to flower use a fertilizer with a high Potassium (K) content (like NPK 6:6:12) and for older trees you might want to use fertilizer with a slightly lower Nitrogen (N) content or reduce the quantity of fertilizer applied.

Although “Bonsai fertilizer” is fertilizer like any other, buying from (online) Bonsai shops will help you find the right NPK values and apply it in correct quantities. Any fertilizer with the right NPK value is perfectly fine. You can choose to use either liquid or solid fertilizer; which doesn’t matter much, just follow the application guidelines as stated on the product’s packaging.



Left: Solid Bonsai fertilizer. Right: Fertilizer covers.

How to feed trees?

Feed your Bonsai using the quantities and frequency as stated on the fertilizer’s packaging. You can choose to reduce the recommended quantity slightly for trees that are not in training anymore, to balance their growth instead of stimulating it. When using solid fertilizer (see photo 1, above) it helps to use fertilizer covers, which make sure the fertilizer stays in place (see photo 2, above). Never overfeed your trees, as this will have serious consequences for their health.

Positioning

Deciding on the right place to put your tree is crucial for its well-being. First make sure that indoor trees are placed in a warm environment; outdoor trees (although depending on species of trees) generally require much lower temperatures and should be placed outside. Next, most species of trees prefer a bright spot, normally with at least some direct sunlight.

Deciding on what is the best location to place your Bonsai trees can be hard, as several factors (local climate, time of year, tree species, etc.) should be taken into consideration. Best is to know what species of tree you have and to look for specific information about it.

Bonsai position; rule of thumb

Most outdoor trees are best placed on a bright spot, about half the day in direct sunlight and protected from the wind.

Indoor trees are best placed on a bright position as well; some species prefer lots of sunlight while others prefer half shade. Place indoor trees somewhere with a constant temperature.



Example of a Pine Bonsai tree, by Mauro Stemberger.

Repotting

To prevent a tree from being pot-bound and ultimately starving to death, regular repotting is crucial. Repotting your Bonsai will not keep it small; instead it will supply the tree with new nutrients that it needs to grow and flourish.

How often?

It depends on the size of container/pot and tree species how often a Bonsai needs to be repotted. Fast growing trees need to be repotted every two years (sometimes even every year), while older, more mature trees need to be repotted every 3 to 5 years.

Do not repot on a routine, instead check on your trees every early spring by carefully removing the tree from its pot. A Bonsai needs to be repotted when the roots circle around the root system. When the roots are still contained in soil wait another year before checking again.

When?

Repotting work normally needs to be done during the early spring; when the tree is still in dormancy. This way the somewhat damaging effect of repotting on a tree is reduced to a minimum, as the tree does not yet have to sustain a full-grown foliage. Repotting in early spring will also ensure that damage done to the root system will be repaired soon, when the tree starts growing.

Bonsai soil mixture

Choosing the right soil mixture is crucial for the health of your trees, it should be draining enough to prevent the roots from rotting, while absorbing enough water to supply the tree with water. Although some tree species need special soil mixtures, the following mixture is suitable for most trees:

Mix akadama, fine gravel and potting compost together in a ratio of $\frac{1}{2}$ to $\frac{1}{4}$ to $\frac{1}{4}$. When you do not have time to water your trees regularly, choose a more water absorbing mixture (use more potting compost), while you should choose a more draining mixture (use more akadama and gravel)

when living in a wet climate.

Choice of Bonsai pot

Choosing a pot that fits your Bonsai, both in size as in style, is crucial for the composition as a whole. This is mostly up to your personal taste.

Repotting Bonsai, step by step

First prepare the pot, than start repotting

1. Put a plastic mesh on the drainage holes, attached with some copper wire (see photo 1, below).
2. Cover the base of the pot with a layer of grit to create a good drainage. You might want to attach another copper wire to the drainage holes in the pot, which can be used to attach the tree with in the next step (see photo 2, below).
3. Now use the prepared soil mixture as the second layer, on which the tree will be planted (see photo 3, below).



Left: Mesh screen wired into pot and wire placed to secure tree. Middle: drainage layer. Right: second layer of bonsai mix.

Step-by-step plan to repot your Bonsai

1. Carefully take the tree out of its pot, when it is stuck use a root-knife (see photo 1, below). Be sure to obtain the right tools, which makes the work easier.
2. Inspect whether the tree needs to be repotted or not, as described above in the 'how often' section.
3. By using a root-hook or some chopsticks, carefully remove the soil and disentangle the roots somewhat (see photo 2, below). When repotting ~~nine trees never remove all the soil: this would remove the mycorrhizal~~

pine trees never remove all the soil, this would remove the mycorrhizal fungus which is essential for the tree's survival.

4. Prune back long roots; this will help your tree to grow a more compact root-system suitable for placement in small Bonsai pots. Also remove rotting or vertical growing roots. Prune up to $\frac{1}{4}$ of the total root mass (see photo 3, below).

5. Place the tree, slightly out of the middle of the pot (see photo 4, below) and attach it with the copper wire (see photo 5, below).

6. Fill the pot using the soil mixture up to about 0.4" (1 cm) below the rim; make sure the soil fills the pot completely and no air pockets between the roots are left (see photo 6, below).

7. Water the tree thoroughly, this will settle the soil and fill up any remaining air pockets.



Left: tree removed from original pot. Middle: soil removal with chopsticks. Right: root pruning.



Left: position tree in pot. Middle: secure tree with wire. Right: add additional soil mix.

And then? Aftercare

Protect the tree from strong winds and sun for about two months. Start fertilizing one month after the repotting.

Chapter 7

Start now; How to grow your own Bonsai

Buying a Bonsai tree in a shop is nice, but wouldn't it be much better to do it yourself? A great way to start growing Bonsai trees is to buy a starterkit and style the tree into a Bonsai. A starterkit can be purchased at many (online) Bonsai shops, but you could also choose to buy only a young plant at a local gardencenter. This article explains the steps to grow a Bonsai tree from a starterkit.



A Bonsai starterkit usually contains a young plant (called a pre-Bonsai or a nursery stock), a Bonsai pot, wire and soil. From this young plant you can create a Bonsai tree in three steps; pruning, wiring and repotting. So, let's have a look at the three steps to create a Bonsai tree. You can also check the Bonsai Empire channel on YouTube for movies on these steps.

Step 1: Pruning your Bonsai tree

First of all, we start to clean out the tree. Carefully study your tree, and decide on what shape you intend to create in it. While it is easy to prune branches, it can be very hard to make them grow back. Once you have decided which branches should be removed, prune these, slowly working your way up the tree. Start with freeing up the trunk a bit.

When pruning larger branches, you need a concave cutter. This cutter leaves behind a hollow wound, which heals much better. After pruning the larger branches, focus on smaller branches, until you are satisfied with the result.



Cleaning up the tree and removing all the dead branches.



Pruning your Bonsai tree.

Step 2: Wiring your Bonsai

Next, we wire the branches, starting with the larger ones. Carefully apply wire around the branches at an angle of about 45 degrees. Try to wire two branches of the same thickness with one wire. As a rule of thumb, apply wire about $\frac{1}{3}$ the thickness of the branch.

When you're done wiring the larger branches, work your way towards the smaller ones. Finish wiring the entire tree, before you start positioning and bending the branches.



Wiring your Bonsai tree.



The 45 degree angle while wiring.

Step 3: Placing your tree in a Bonsai pot

Now that we have pruned and wired the tree, it is time to repot it.

To get started, we prepare the Bonsai pot. Place two wires that can be used later on to attach the tree firmly to the pot. We also cover the watering holes by attaching a plastic mesh.

When the pot is ready, we prepare the soil mix. Usually a starter kit comes with premixed Bonsai soil, but if not, check our website for more information.

Now remove the plant from its plastic container and get rid of any loose soil. We also want to reveal the trunk a bit. Carefully unravel the roots using a root-hook. To make the tree fit in the pot, you will need to prune away roots. You can prune up to about 1/3 of the total root mass. Now, put some soil in the pot.

The tree is now ready to be placed in the pot, but first, decide on what the front of the tree should be. Place the tree just off the center and attach it carefully with the wires that were attached in the pot earlier. Cover the roots with soil and by using chopsticks we make sure that the entire rootmass is filled with soil. When we're done, we water the tree.



The mixed bonsai soil.



Unraveling the roots with a root hook.



Placing the tree in the pot and attaching it firmly with wire.



The repotted Bonsai tree after thorough watering.



The starter kit package.



The result.

That's it!

Now we have a Bonsai tree; pruned, wired and repotted. So what's next? Remove the wire after a few months, otherwise the branches would get damaged as they grow thicker. Place the tree in the shade the first month after repotting.

In this article we used a Cypress (*Chamaecyparis Pisifera*) tree, but starterkits can contain any kind of tree species. Make sure you know what tree species you have, and look up its specific care guidelines in our Bonsai tree species section.



Age: 50 years, height 1'12" / 60 cm. Japanese Maple (in winter) by Walter Pall



Age: 50 years, height 1'12" / 60 cm. Japanese Maple by Walter Pall

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